

Claims

1. A prosthesis for implantation in the knee joint, said prosthesis comprising: a tibial component having a first, upper surface and a second, lower surface opposite said first surface for attachment to the tibia, said first surface including a lateral bearing region and a medial bearing region, wherein the respective angles of inclination of said lateral and said medial bearing regions of said first surface, with respect to said second surface, are dissimilar.
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2. A prosthesis according to claim 1 wherein the direction of inclination is between said anterior side and said posterior side.
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3. A prosthesis according to claim 1 wherein the angle of inclination of the lateral bearing region is more positive than the angle of inclination of the medial bearing region.
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4. A prosthesis according to claim 1 wherein the difference in angle of inclination between the lateral and medial bearing regions is within a range of approximately 2 to 4 degrees.
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5. A prosthesis according to claim 1 wherein the height of the lateral bearing region increases from said anterior side to said posterior side.
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6. A prosthesis according to claim 1 wherein the lateral bearing region is inclined at a positive angle to the second surface, and said medial bearing region is substantially parallel to said second surface.
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7. A prosthesis according to claim 1 wherein the lateral bearing region is substantially parallel to the second surface, and said medial bearing region is inclined at a negative angle to said second surface.
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8. A prosthesis according to claim 1 wherein the lateral bearing region is inclined at a positive angle to the second surface, and said medial bearing region is inclined at a lesser positive angle to said second surface.
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9. A prosthesis according to claim 1, wherein the lateral and medial bearing regions are formed as flat plane plateaux.
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10. A prosthesis according to claim 1, wherein the lateral and medial bearing regions have a convex, part-cylindrical form.
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11. A prosthesis according to claim 1, wherein the lateral bearing region has a convex form and the medial bearing region has a flat form.

12. A prosthesis according to claim 1, wherein the lateral bearing region has a flat form and the medial bearing region has a concave form.

5 13. A prosthesis according to claim 1, wherein the lateral bearing region has a convex form and the medial bearing region has a concave form.

14. A prosthesis according to claim 1 wherein the angles of inclination of said lateral and said medial bearing regions are chosen such that, when attached to the tibia, the lateral bearing region is inclined downwards to the horizontal at a lesser angle than the medial bearing region, in an antero-posterior direction.

10 15. A method of implanting a tibial prosthesis comprising sawing the medial and lateral compartments of the tibial bone condyles and attaching the prosthesis to the prepared surface of the tibial bone, wherein the angle of the saw cut is chosen such that the posterior side of the lateral bearing region sits higher on the tibia than the posterior side of the medial bearing region.

16. A prosthesis for implantation in the knee, said prosthesis comprising: a tibial component for attachment to the tibia, having a first, upper surface and a second, lower surface opposite said first surface for attachment to the tibia, said first surface including a lateral bearing region and a medial bearing region, arranged such 20 that the respective angles of inclination in sagittal planes of said lateral and said medial bearing regions of the component in situ when fitted to the tibia are different.

17. A prosthesis according to claim 16, wherein the lateral and medial bearing regions in situ are inclined downward to the horizontal from the anterior to the posterior side, the angle of downward inclination of said lateral bearing region to the horizontal being less than the angle of downward inclination of said medial bearing region, such that the posterior of the lateral bearing region is higher than the posterior of the medial bearing region.

25 18. A prosthesis comprising a tibial component having lateral and medial portions of differing height, wherein the difference in height of the lateral and medial

portions increases posteriorly, such as to progressively tighten the lateral ligament more than the medial ligament as the joint moves from extension to flexion.

19. A prosthesis according to claim 16 further comprising an intermediate meniscal bearing component and a femoral component for attachment to the femur.

5 20. A tibial component having lateral and medial bearing portions and dimensioned such that a difference in the respective thicknesses of the lateral bearing portion and the medial bearing portion increases in an anterior to posterior direction.

10 21. A tibial component having lateral and medial bearing portions, wherein the thickness of at least one bearing portion changes progressively from the anterior side to the posterior side.

22. A tibial component according to claim 21, wherein the cross-sectional area of the lateral bearing portion in a sagittal plane that bisects the lateral bearing portion is greater than the cross-sectional area of the medial bearing portion in a corresponding sagittal plane.

15 23. A tibial component according to claim 21, wherein the change in thickness of the lateral and medial bearing portions in the anterior to posterior direction is described by the following expression:

$$t_{lat(p)} - t_{lat(a)} > t_{med(p)} - t_{med(a)}$$

Where $t_{lat(p)}$ is the thickness of the lateral bearing portion to the posterior side, 20 $t_{lat(a)}$ is the thickness of the lateral bearing portion to the anterior side, $t_{med(p)}$ is the thickness of the medial bearing portion to the posterior side and $t_{med(a)}$ is the thickness of the medial bearing portion to the anterior side.

25 24. A tibial component having a lateral and a medial bearing portion comprising means for tensioning the lateral ligaments progressively more than the medial ligament.